

=> d his

(FILE 'HOME' ENTERED AT 06:23:56 ON 28 OCT 2004)
SET COST OFF

FILE 'HCAPLUS' ENTERED AT 06:27:06 ON 28 OCT 2004
L1 2 S US20040127702/PN OR (US2003-666175# OR US2002-425596# OR US20
E PEARLMAN B/AU
L2 31 S E4,E7-E9
E ANTOSZ F/AU
L3 16 S E3-E5
L4 183 S ?EPLERENON?

FILE 'REGISTRY' ENTERED AT 06:28:49 ON 28 OCT 2004
L5 1 S 107724-20-9

FILE 'HCAPLUS' ENTERED AT 06:29:31 ON 28 OCT 2004
SET SMARTSELECT ON
L6 SEL L1 1- RN : 100 TERMS
SET SMARTSELECT OFF

FILE 'REGISTRY' ENTERED AT 06:29:31 ON 28 OCT 2004
L7 100 S L6
L8 27 S L7 AND OC4-C5-C6-C6-C6/ES
L9 6 S L8 AND OC4/ES
L10 1 S L9 AND C27H3204
E C27H3204/MF
L11 1 S E3 AND OC4-C5-C6-C6-C6/ES AND OC4/ES
L12 1 S L10,L11
SEL RN
L13 0 S E1/CRN

FILE 'HCAOLD' ENTERED AT 06:32:59 ON 28 OCT 2004
L14 0 S L12

FILE 'USPATFULL, USPAT2' ENTERED AT 06:33:00 ON 28 OCT 2004
L15 1 S L12

FILE 'HCAPLUS' ENTERED AT 06:33:01 ON 28 OCT 2004
L16 3 S L12
L17 1 S L16 AND L1-L3
L18 2 S L16 AND (PHARMACIA? OR UPJOHN?)/PA,CS
L19 3 S L16-L18

FILE 'REGISTRY' ENTERED AT 06:37:28 ON 28 OCT 2004
L20 STR
L21 0 S L20
L22 STR L20
L23 7 S L22
L24 2101 S L22 FUL
SAV TEMP L24 QAZI666/A
L25 45 S L20 FUL SUB=L24
SAV TEMP L25 QAZI666A/A
L26 STR L20
L27 12 S L26 FUL SUB=L25
SAV L27 TEMP QAZI666B/A
L28 11 S L27 NOT L12

FILE 'HCAPLUS' ENTERED AT 06:40:24 ON 28 OCT 2004
L29 2 S L28
L30 1 S L29 AND L1-L3
L31 1 S L29 AND (PHARMACIA? OR UPJOHN?)/PA,CS
L32 3 S L19,L29-L31

FILE 'USPATFULL, USPAT2' ENTERED AT 06:40:50 ON 28 OCT 2004

L33 1 S L28

L34 1 S L15, L33

=> fil reg

FILE 'REGISTRY' ENTERED AT 06:41:14 ON 28 OCT 2004

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

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Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 26 OCT 2004 HIGHEST RN 769912-90-5
 DICTIONARY FILE UPDATES: 26 OCT 2004 HIGHEST RN 769912-90-5

TSCA INFORMATION NOW CURRENT THROUGH MAY 21, 2004

Please note that search-term pricing does apply when conducting SmartSELECT searches.

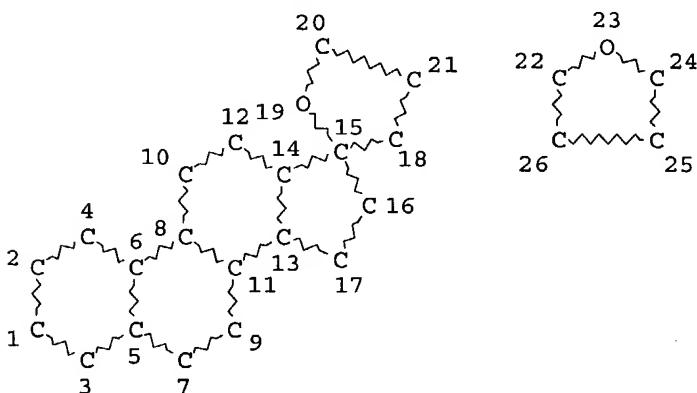
Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. For more information enter HELP PROP at an arrow prompt in the file or refer to the file summary sheet on the web at:

<http://www.cas.org/ONLINE/DBSS/registryss.html>

=> d sta que 127

L20 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

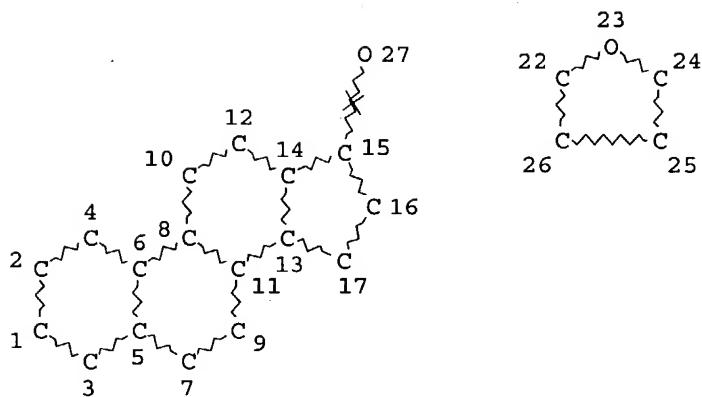
GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 26

STEREO ATTRIBUTES: NONE

L22 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

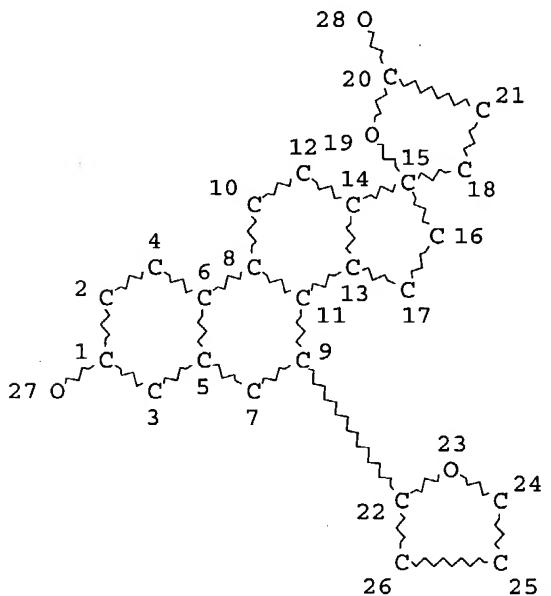
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RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 23

STEREO ATTRIBUTES: NONE

L24 2101 SEA FILE=REGISTRY SSS FUL L22
 L25 45 SEA FILE=REGISTRY SUB=L24 SSS FUL L20
 L26 STR



NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 28

STEREO ATTRIBUTES: NONE

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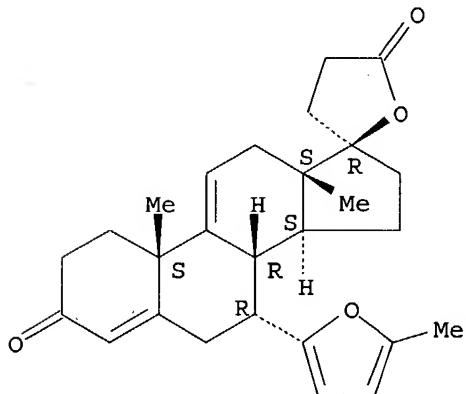
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 SEARCH TIME: 00.00.01

12 ANSWERS

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L12 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 610785-40-5 REGISTRY
 CN Pregna-4,9(11)-diene-21-carboxylic acid, 17-hydroxy-7-(5-methyl-2-furanyl)-3-oxo-, γ -lactone, (7 α ,17 α)- (9CI) (CA INDEX NAME)
 FS STEREOSEARCH
 MF C27 H32 O4
 SR CA
 LC STN Files: CA, CAPLUS, CASREACT, USPATFULL
 DT.CA CAplus document type: Patent
 RL.P Roles from patents: BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

Absolute stereochemistry.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

2 REFERENCES IN FILE CA (1907 TO DATE)
 3 REFERENCES IN FILE CAPLUS (1907 TO DATE)

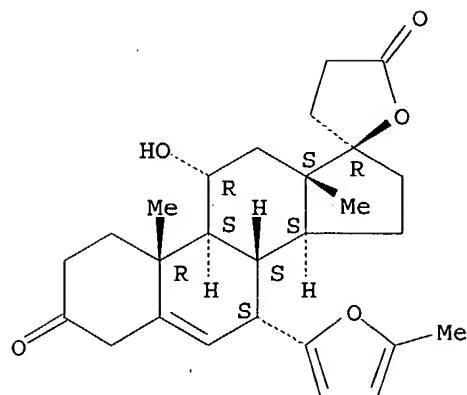
REFERENCE 1: 140:423864

REFERENCE 2: 139:307925

=> d ide can tot 128

L28 ANSWER 1 OF 11 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 690958-98-6 REGISTRY
 CN Pregn-5-ene-21-carboxylic acid, 11,17-dihydroxy-7-(5-methyl-2-furanyl)-3-oxo-, γ -lactone, (7 α ,11 α ,17 α)- (9CI) (CA INDEX NAME)
 FS STEREOSEARCH
 MF C27 H34 O5
 SR CA
 LC STN Files: CA, CAPLUS, CASREACT, USPATFULL
 DT.CA CAplus document type: Patent
 RL.P Roles from patents: BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent)

Absolute stereochemistry.



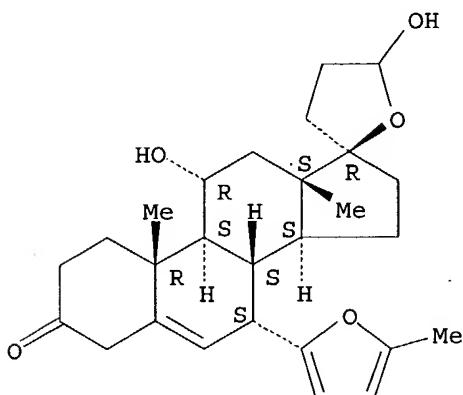
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1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 140:423864

L28 ANSWER 2 OF 11 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 690958-89-5 REGISTRY
 CN Spiro[androst-5-ene-17,2' (3'H)-furan]-3-one, 4',5'-dihydro-5',11-dihydroxy-7-(5-methyl-2-furanyl)-, (7 α ,11 α ,17 β)- (9CI) (CA INDEX
 NAME)
 FS STEREOSEARCH
 MF C27 H36 O5
 SR CA
 LC STN Files: CA, CAPLUS, USPATFULL
 DT.CA CAplus document type: Patent
 RL.P Roles from patents: BIOL (Biological study); PREP (Preparation); RACT
 (Reactant or reagent)

Absolute stereochemistry.



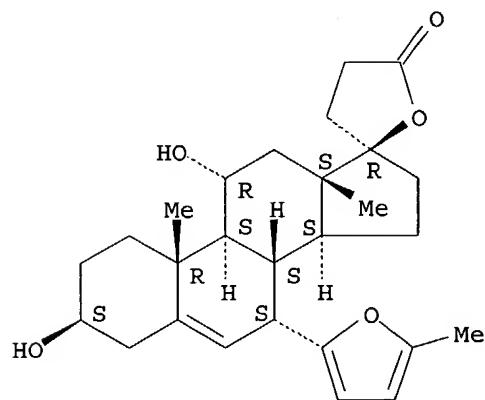
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1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 140:423864

L28 ANSWER 3 OF 11 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 690958-83-9 REGISTRY
 CN Pregn-5-ene-21-carboxylic acid, 3,11,17-trihydroxy-7-(5-methyl-2-furanyl)-
 , γ -lactone, (3 β ,7 α ,11 α ,17 α)- (9CI) (CA
 INDEX NAME)
 FS STEREOSEARCH
 MF C27 H36 O5
 SR CA
 LC STN Files: CA, CAPLUS, CASREACT, USPATFULL
 DT.CA CAplus document type: Patent
 RL.P Roles from patents: BIOL (Biological study); PREP (Preparation); RACT
 (Reactant or reagent)

Absolute stereochemistry.



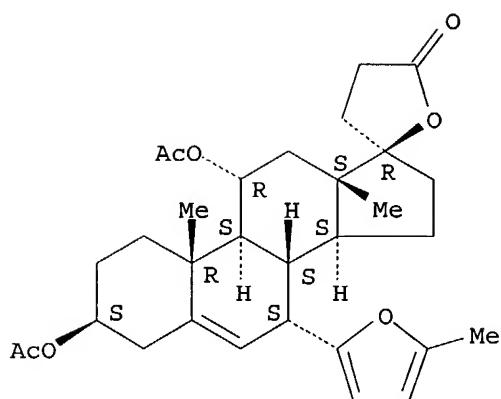
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1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 140:423864

L28 ANSWER 4 OF 11 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 690958-80-6 REGISTRY
 CN Spiro[androst-5-ene-17,2'-(5'H)-furan]-5'-one, 3,11-bis(acetyloxy)-3',4'-
 dihydro-7-(5-methyl-2-furanyl)-, (3 β ,7 α ,11 α ,17 β)-
 (9CI) (CA INDEX NAME)
 FS STEREOSEARCH
 MF C31 H40 O7
 SR CA
 LC STN Files: CA, CAPLUS, CASREACT, USPATFULL
 DT.CA CAplus document type: Patent
 RL.P Roles from patents: BIOL (Biological study); PREP (Preparation); RACT
 (Reactant or reagent)

Absolute stereochemistry.



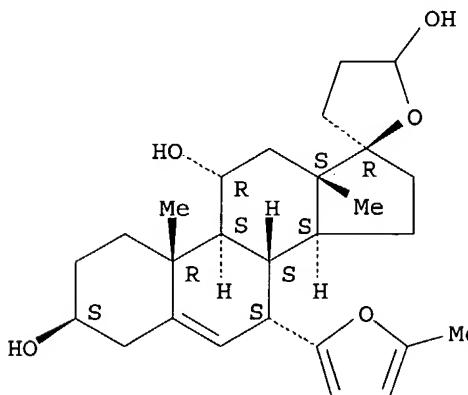
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 140:423864

L28 ANSWER 5 OF 11 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 690958-45-3 REGISTRY
 CN Spiro[androst-5-ene-17,2' (3'H)-furan]-3,5',11-triol, 4',5'-dihydro-7-(5-methyl-2-furanyl)-, (3 β ,7 α ,11 α ,17 β)- (9CI) (CA
 INDEX NAME)
 FS STEREOSEARCH
 MF C27 H38 O5
 SR CA
 LC STN Files: CA, CAPLUS, CASREACT, USPATFULL
 DT.CA Cplus document type: Patent
 RL.P Roles from patents: BIOL (Biological study); PREP (Preparation); RACT
 (Reactant or reagent)

Absolute stereochemistry.



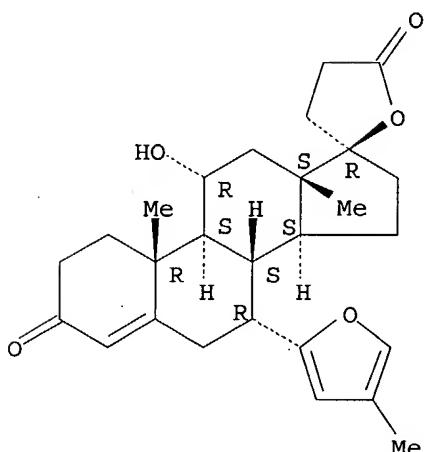
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1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 140:423864

L28 ANSWER 6 OF 11 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 610785-54-1 REGISTRY
 CN Pregn-4-ene-21-carboxylic acid, 11,17-dihydroxy-7-(4-methyl-2-furanyl)-3-oxo-, γ -lactone, (7 α ,11 α ,17 α)- (9CI) (CA INDEX
 NAME)
 FS STEREOSEARCH
 MF C27 H34 O5
 SR CA
 LC STN Files: CA, CAPLUS, CASREACT
 DT.CA CAplus document type: Patent
 RL.P Roles from patents: BIOL (Biological study); PREP (Preparation); USES
 (Uses)

Absolute stereochemistry.



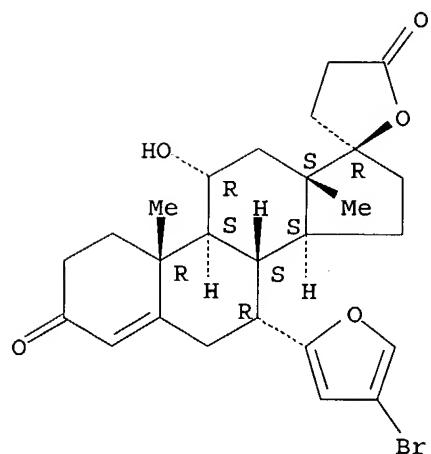
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1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 139:307925

L28 ANSWER 7 OF 11 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 610785-53-0 REGISTRY
 CN Pregn-4-ene-21-carboxylic acid, 7-(4-bromo-2-furanyl)-11,17-dihydroxy-3-oxo-, γ -lactone, (7 α ,11 α ,17 α)- (9CI) (CA INDEX
 NAME)
 FS STEREOSEARCH
 MF C26 H31 Br O5
 SR CA
 LC STN Files: CA, CAPLUS, CASREACT
 DT.CA CAplus document type: Patent
 RL.P Roles from patents: BIOL (Biological study); PREP (Preparation); USES
 (Uses)

Absolute stereochemistry.



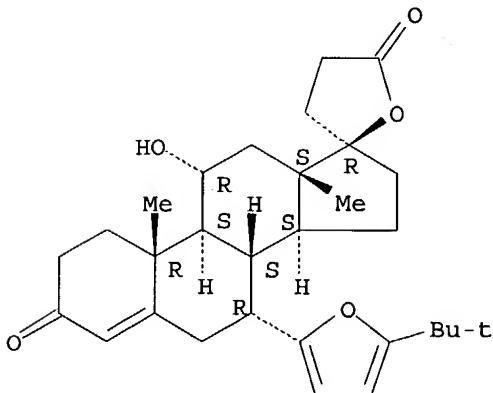
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 139:307925

L28 ANSWER 8 OF 11 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 610785-52-9 REGISTRY
 CN Pregn-4-ene-21-carboxylic acid, 7-[5-(1,1-dimethylethyl)-2-furanyl]-11,17-dihydroxy-3-oxo-, γ -lactone, (7 α ,11 α ,17 α)- (9CI)
 (CA INDEX NAME)
 FS STEREOSEARCH
 MF C30 H40 O5
 SR CA
 LC STN Files: CA, CAPLUS, CASREACT
 DT.CA CAPplus document type: Patent
 RL.P Roles from patents: BIOL (Biological study); PREP (Preparation); USES
 (Uses)

Absolute stereochemistry.



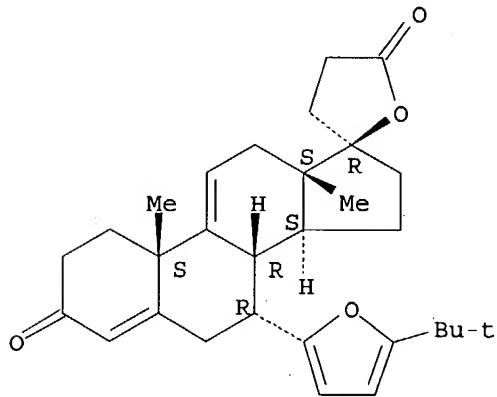
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 139:307925

L28 ANSWER 9 OF 11 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 610785-51-8 REGISTRY
 CN Pregna-4,9(11)-diene-21-carboxylic acid, 7-[5-(1,1-dimethylethyl)-2-furanyl]-17-hydroxy-3-oxo-, γ -lactone, (7 α ,17 α)- (9CI)
 (CA INDEX NAME)
 FS STEREOSEARCH
 MF C30 H38 O4
 SR CA
 LC STN Files: CA, CAPLUS, CASREACT
 DT.CA Cplus document type: Patent
 RL.P Roles from patents: BIOL (Biological study); PREP (Preparation); USES (Uses)

Absolute stereochemistry.



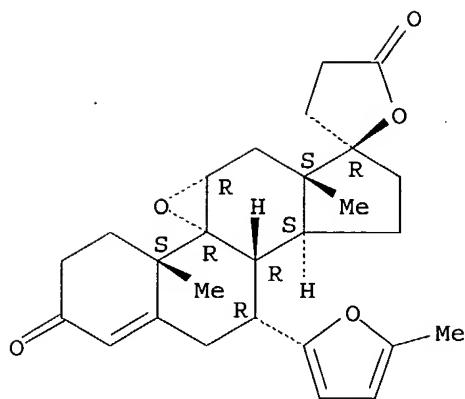
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 139:307925

L28 ANSWER 10 OF 11 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 610785-48-3 REGISTRY
 CN Pregn-4-ene-21-carboxylic acid, 9,11-epoxy-17-hydroxy-7-(5-methyl-2-furanyl)-3-oxo-, γ -lactone, (7 α ,11 α ,17 α)- (9CI)
 (CA INDEX NAME)
 FS STEREOSEARCH
 MF C27 H32 O5
 SR CA
 LC STN Files: CA, CAPLUS, CASREACT
 DT.CA Cplus document type: Patent
 RL.P Roles from patents: BIOL (Biological study); PREP (Preparation); USES (Uses)

Absolute stereochemistry.



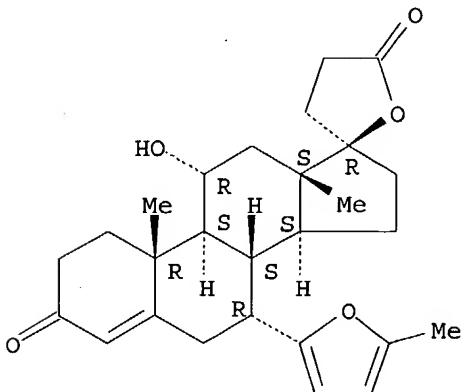
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

1 REFERENCES IN FILE CA (1907 TO DATE)
 1 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 139:307925

L28 ANSWER 11 OF 11 REGISTRY COPYRIGHT 2004 ACS on STN
 RN 610785-47-2 REGISTRY
 CN Pregn-4-ene-21-carboxylic acid, 11,17-dihydroxy-7-(5-methyl-2-furanyl)-3-oxo-, γ -lactone, (7 α ,11 α ,17 α)- (9CI) (CA INDEX
 NAME)
 FS STEREOSEARCH
 MF C27 H34 O5
 SR CA
 LC STN Files: CA, CAPLUS, CASREACT, USPATFULL
 DT.CA Caplus document type: Patent
 RL.P Roles from patents: BIOL (Biological study); PREP (Preparation); RACT
 (Reactant or reagent); USES (Uses)

Absolute stereochemistry.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

2 REFERENCES IN FILE CA (1907 TO DATE)
 2 REFERENCES IN FILE CAPLUS (1907 TO DATE)

REFERENCE 1: 140:423864

REFERENCE 2: 139:307925

=> fil hcplus
 FILE 'HCAPLUS' ENTERED AT 06:41:48 ON 28 OCT 2004
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 PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
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FILE COVERS 1907 - 28 Oct 2004 VOL 141 ISS 18
 FILE LAST UPDATED: 27 Oct 2004 (20041027/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d 132 all hitstr tot

L32 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2004:817907 HCAPLUS
 ED Entered STN: 07 Oct 2004
 TI Preparation of spirosteroids from 17-alkenyl or 17-alkynyl substrate via carbonylation, hydrogenation, dehydrogenation, furylation and other transformations
 IN Franczyk, Thaddeus S., II; Wagner, Grace M.
 PA Pharmacia Corporation, USA
 SO PCT Int. Appl., 177 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C07J
 CC 32-1 (Steroids)
 FAN.CNT 1

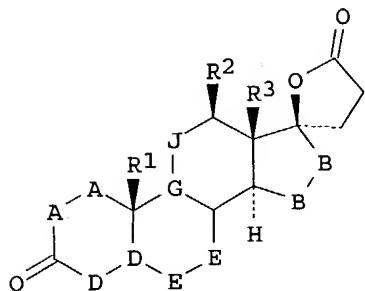
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2004085458	A2	20041007	WO 2004-US8629	20040322
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	RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

PRAI US 2003-456716P P 20030321

CLASS

PATENT NO. CLASS PATENT FAMILY CLASSIFICATION CODES

WO 2004085458 ICM C07J
GI



AB Steroids such as I (R1, R2, R3 = H, halo, haloalkyl, OH, alkyl, alkoxy, hydroxyalkyl, alkoxyalkyl, hydroxycarbonyl, CN, aryloxy; A-A, B-B, D-D, and G-J = substituted or unsubstituted double or single bond with R groups similar to those for R1, R2, R3 in the substituted case) comprising a 17-spirolactone or corresponding open lactone structure is obtained by carbonylation of a 17-alkenyl or 17-alkynyl substrate. A 17-alkenyl intermediate may be prepared by semi-hydrogenation of a 17-alkynyl group. Multiple reaction schemes are disclosed for preparation of a 3-keto-9,11-epoxy-17-spirolactone steroid such as eplerenone. Novel intermediates are also disclosed, as well as steps for forming such novel intermediates, or converting them to further intermediates or products, by semi-hydrogenation, carbonylation, 6,7-dehydrogenation, furylation or other transformations or combinations thereof.

ST spirolactone steroid eplerenone prep; hydrogenation carbonylation dehydrogenation furylation spirolactone steroid prep

IT Carbonylation
Dehydrogenation
Hydrogenation
(preparation of spirolactone steroid derivs. from 17-alkenyl or 17 alkynyl steroids via carbonylation, semi-hydrogenation, dehydrogenation, furylation and other transformations)

IT Steroids
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(spiro; preparation of spirolactone steroid derivs. from 17-alkenyl or 17 alkynyl steroids via carbonylation, semi-hydrogenation, dehydrogenation, furylation and other transformations)

IT 192704-66-8P 610269-44-8P 610269-45-9P 610269-50-6P 610269-51-7P
769146-02-3P 769146-04-5P
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of spirolactone steroid derivs. from 17-alkenyl or 17 alkynyl steroids via carbonylation, semi-hydrogenation, dehydrogenation, furylation and other transformations)

IT 41850-21-9P 95716-71-5P 107724-20-9P, Eplerenone 610785-40-5P
769146-08-9P
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(preparation of spirolactone steroid derivs. from 17-alkenyl or 17 alkynyl steroids via carbonylation, semi-hydrogenation, dehydrogenation, furylation and other transformations)

IT 434-03-7, Ethisterone 534-22-5 28319-72-4 95716-70-4 769146-05-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of spirolactone steroid derivs. from 17-alkenyl or 17 alkynyl steroids via carbonylation, semi-hydrogenation, dehydrogenation, furylation and other transformations)

IT 610785-40-5P

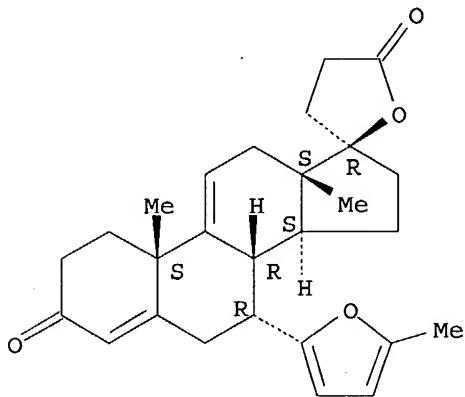
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)

(preparation of spirolactone steroid derivs. from 17-alkenyl or 17 alkynyl steroids via carbonylation, semi-hydrogenation, dehydrogenation, furylation and other transformations)

RN 610785-40-5 HCAPLUS

CN Pregna-4,9(11)-diene-21-carboxylic acid, 17-hydroxy-7-(5-methyl-2-furanyl)-3-oxo-, γ -lactone, (7 α ,17 α)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L32 ANSWER 2 OF 3 HCPLUS COPYRIGHT 2004 ACS on STN

AN 2004:414628 HCAPLUS

DN 140:423864

ED Entered STN: 21 May 2004

TI Proc

ol-17-one

IN Wuts, Peter G

PA USA

SO U.S. Pat. Appl.

CODEN: USXXCO

DT Patent

LA English

IC ICM A61K031-58

ICS C07J043-00; C07J021-00; C

NCL 5141

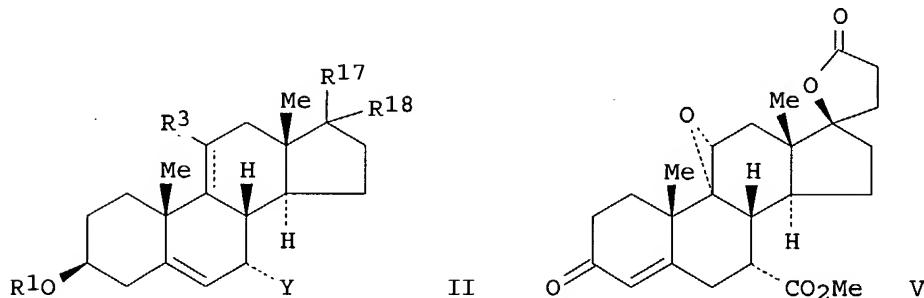
PATENT NO. KIND DATE APPLICATION NO. DATE
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US 3,001,027 A1 2001-05-29 US 3,002,382 A1 2002-03-21

2004097475 A1 20040520 US 2003-392945 20030321
 2004043986 A1 20040527 WO 2003-US7284 20030321
 W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
 CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
 GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
 LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
 PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ,
 UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD,
 RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG,
CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC,
NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
US 2004097475	ICM	A61K031-58
	ICS	C07J043-00; C07J021-00; C07J017-00
	NCL	514173000; 514176000; 514178000; 540041000; 540107000; 540114000
OS	CASREACT	140:423864; MARPAT 140:423864
GI		



AB The present invention discloses a process for the transformation of 5-androsten-3 β -ol-17-one (I) to C-7 substituted steroids, such as II [R1 = H, COR2; R2 = alkyl, alkoxy; R3 = H, OR1; R17R18 = O, lactone; Y = CN, CH₂CH:CH₂, 5-(C1-6-alkyl)-2-furyl, 1-(C1-6-alkyl)-2-pyrrolyl, CHR₄C(O)aryl, CHR₄C(O)alkyl, CHR₄C(O)X-aryl, CHR₄C(O)X-alkyl; R4 = alkyl, aryl; X = O, S, dashed bond = single bond or double bond]. Thus, bioconversion of I to 5-androsten-3 β ,7 β -diol-17-one (III) was performed using a submerged culture of *Diplodia gossypina* ATCC 20571. III was subsequently converted to 5-androsten-3 β ,7 β ,11 α -triol-17-one (IV) using a submerged culture of *Aspergillus ochraceus* ATCC 18500. IV can also be obtained from II using a submerged culture of *Absidia coerulea* ATCC 6647. These intermediates are useful in the preparation of eplerenone (V).

ST carboxysteroid eplerenone prep androstenol deriv hydroxylation androstenone; hydroxyandrostenone dihydroxyandrostenone trihydroxyandrostenone prep

IT *Aspergillus ochraceus*
(ATCC 18500; for 11 α -hydroxylation of 5-androsten-3 β ,7 β -diol-17-one in preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

IT *Diplodia gossypina*
(ATCC 20571; for 7 β -hydroxylation of 5-androsten-3 β -ol-17-one in preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

IT *Absidia coerulea*
(ATCC 6647; for 7 β ,11 α -dihydroxylation of 5-androsten-3 β -ol-17-one in preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

IT Hydroxylation
(biol.; during preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

IT Lewis acids
RL: CAT (Catalyst use); USES (Uses)
(catalyst; during preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

IT Bromination
Dehydration reaction
Ozonization

(during preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

IT Isomerization
(of 4,5-double bond during preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

IT Nucleophiles
(preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

IT Steroids, preparation
RL: BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent)
(preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

IT Sterols
RL: BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); RCT (Reactant); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent)
(preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

IT Acylation
Esterification
Hydroformylation
Oxidation
Silylation
(stereoselective; during preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

IT Allylation
(stereoselective; preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

IT 537718-07-3P
RL: BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); RCT (Reactant); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent)
(preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

IT 95716-70-4P 192704-56-6P 537718-14-2P 610785-40-5P
610785-45-0P 610785-47-2P 685877-48-9P 685877-49-0P
685877-50-3P 685877-51-4P 690958-24-8P 690958-30-6P 690958-38-4P
690958-45-3P 690958-80-6P 690958-83-9P
690958-89-5P 690958-95-3P 690958-98-6P
RL: BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); RCT (Reactant); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent)
(preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

IT 107724-20-9P, Eplerenone
RL: BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)
(preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

IT 192704-58-8P
RL: BPN (Biosynthetic preparation); IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent)
(preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

IT 2487-48-1P
RL: BPN (Biosynthetic preparation); RCT (Reactant); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent)
(preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

IT 54761-04-5, Ytterbium triflate 144026-79-9, Scandium triflate
RL: CAT (Catalyst use); USES (Uses)
(preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

IT 690959-06-9P 690959-08-1P 690959-11-6P 690959-13-8P
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

IT 53-43-0 74-86-2, Acetylene, reactions 534-22-5, 2-Methylfuran
762-72-1, Allyltrimethylsilane 763-13-3 7677-24-9,

Trimethylsilyl cyanide 40474-65-5 67576-47-0 86298-22-8 537718-13-1
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

IT 144-62-7, Oxalic acid, reactions
 RL: RGT (Reagent); RACT (Reactant or reagent)
 (preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

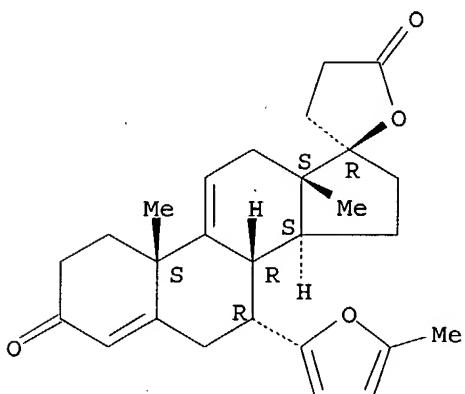
IT 75-05-8, Acetonitrile, uses 75-09-2, Dichloromethane, uses
 RL: NUU (Other use, unclassified); USES (Uses)
 (solvent; preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

IT 610785-40-5P 610785-47-2P 690958-45-3P
 690958-80-6P 690958-83-9P 690958-89-5P
 690958-98-6P
 RL: BMF (Bioindustrial manufacture); BPN (Biosynthetic preparation); RCT (Reactant); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent)
 (preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

RN 610785-40-5 HCPLUS

CN Pregna-4,9(11)-diene-21-carboxylic acid, 17-hydroxy-7-(5-methyl-2-furanyl)-3-oxo-, γ -lactone, (7 α ,17 α)- (9CI) (CA INDEX NAME)

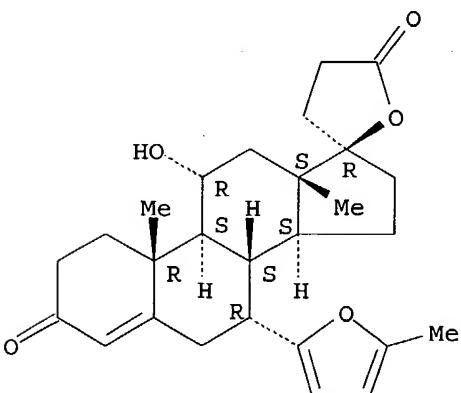
Absolute stereochemistry.



RN 610785-47-2 HCPLUS

CN Pregna-4-ene-21-carboxylic acid, 11,17-dihydroxy-7-(5-methyl-2-furanyl)-3-oxo-, γ -lactone, (7 α ,11 α ,17 α)- (9CI) (CA INDEX NAME)

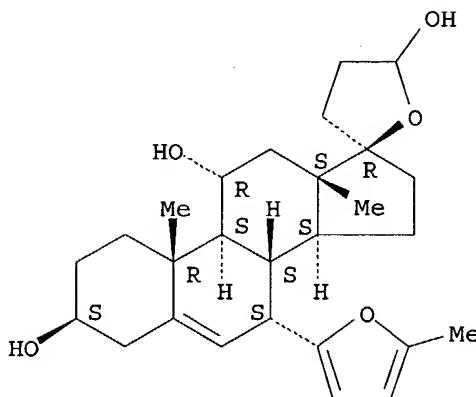
Absolute stereochemistry.



RN 690958-45-3 HCPLUS

CN Spiro[androst-5-ene-17,2' (3'H)-furan]-3',5',11-triol, 4',5'-dihydro-7-(5-methyl-2-furanyl)-, (3 β ,7 α ,11 α ,17 β)- (9CI) (CA INDEX NAME)

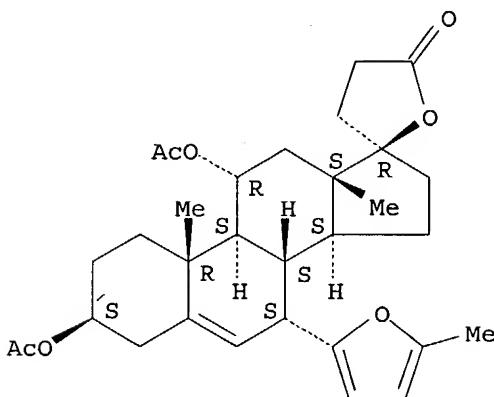
Absolute stereochemistry.



RN 690958-80-6 HCPLUS

CN Spiro[androst-5-ene-17,2' (5'H)-furan]-5'-one, 3,11-bis (acetyloxy)-3',4'-dihydro-7-(5-methyl-2-furanyl)-, (3 β ,7 α ,11 α ,17 β)- (9CI) (CA INDEX NAME)

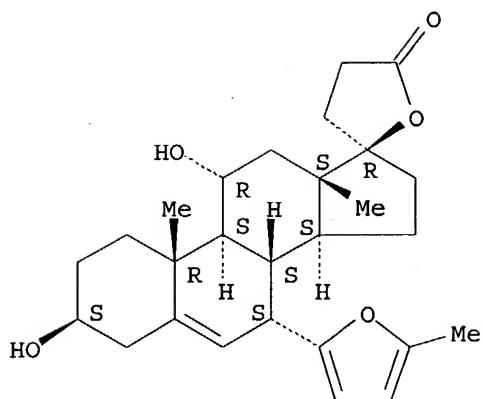
Absolute stereochemistry.



RN 690958-83-9 HCPLUS

CN Pregn-5-ene-21-carboxylic acid, 3,11,17-trihydroxy-7-(5-methyl-2-furanyl)-, γ -lactone, (3 β ,7 α ,11 α ,17 α)- (9CI) (CA INDEX NAME)

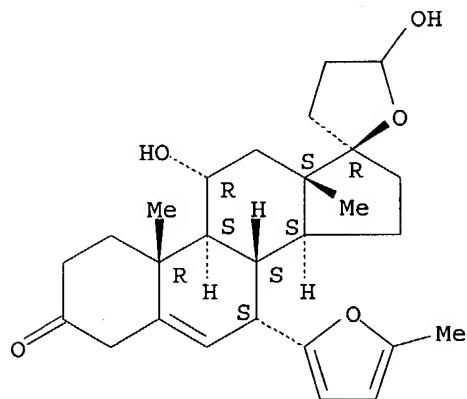
Absolute stereochemistry.



RN 690958-89-5 HCPLUS

CN Spiro[androst-5-ene-17,2'-(3'H)-furan]-3-one, 4',5'-dihydro-5',11-dihydroxy-7-(5-methyl-2-furanyl)-, (7 α ,11 α ,17 β)- (9CI) (CA INDEX NAME)

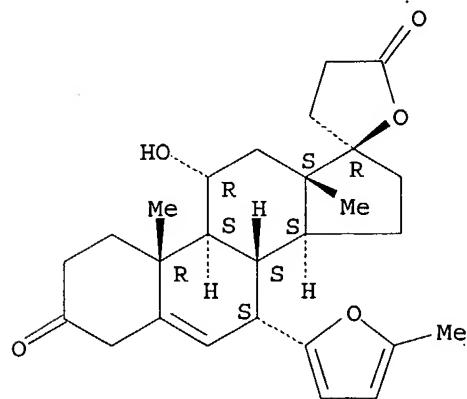
Absolute stereochemistry.



RN 690958-98-6 HCPLUS

CN Pregn-5-ene-21-carboxylic acid, 11,17-dihydroxy-7-(5-methyl-2-furanyl)-3-oxo-, γ -lactone, (7 α ,11 α ,17 α)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L32 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2003:796726 HCAPLUS
 DN 139:307925
 ED Entered STN: 10 Oct 2003
 TI Process to prepare eplerenone and its intermediates from
 Δ9-canrenone and other pregnanes
 IN Pearlman, Bruce Allen; Padilla, Amphlett Greg; Havens, Jeffrey
 L.; Mackey, Sonja S.; Wu, Haifeng
 PA Pharmacia & Upjohn Company, USA
 SO PCT Int. Appl., 429 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 IC ICM C07J001-00
 CC 32-5 (Steroids)
 Section cross-reference(s): 2, 63

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2003082895	A2	20031009	WO 2003-US7793	20030321 <--
	WO 2003082895	A3	20040422		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2003232981	A1	20031218	US 2003-392833	20030321 <--
	US 2004024202	A1	20040205	US 2003-392857	20030321 <--
	WO 2004037844	A1	20040506	WO 2003-US29923	20030919 <--
	WO 2004037844	C1	20040610		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2004127702	A1	20040701	US 2003-666175	20030919 <--
PRAI	US 2002-366784P	P	20020322		
	US 2002-411874P	P	20020919 <--		
	US 2002-425596P	P	20021112 <--		
	US 2003-392833	A	20030321		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 2003082895	ICM	C07J001-00
OS	CASREACT 139:307925; MARPAT 139:307925	
GI		

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The present invention involves novel intermediates I [R9 = H, OH, O-PG, F; PG = SiMe3, SiEt3, Ac, CHO; R11 = :O, H2, α R11-1 β R11-2, R11-5R11-6; R11-1 = H, OR11-3; R11-2 = H, OR11-4; R11-3 = H, PG; R11-4 = H, PG; R11-5R9 = bond, R11-6 = H or R11-6R9 = bond, R11-5 = H; R11-7R9 = O; R11-8 = H; R17 = :O, α R17-1 β R17-2, α R17-3 β R17-4, α R17-5 β R17-6, α R17-7 β R17-8, OCH(OR17-9)CH2CH2, α R17-11 β R17-12; R17-1 = H, C.tplbond.CH, CN, C.tplbond.CCH2 α R17-1-1, C.tplbond.CCH2O-PG, .CH2CH2CO2-; R17-2 = OH; R17-3 = OH; R17-4 = COMe, COCH2OH, COCH2OC(:O)(CH2)0-3Me; R17-5R17-6 = α -CH2O- β ; R17-7R17-8 = α -OC(:O)CH2CH2- β ; R17-9 = H, C1-3-alkyl; R17-11 = (CH2)1-2CH:CH2; R17-12 = OH; R17-1-1 = H, Si(R17-1-2)3; R17-1-2 = C1-4-alkyl, CH(OEt)Me, THP], including an 7 α -substituted steroid, and various novel processes which are used to prepare known intermediates useful in the production of eplerenone, a pharmaceutical agent. Thus, pregnadienone spirolactone II was prepared from Δ 9-canrenone (III) via conjugate addition of 2-methylfuran in MeNO2 containing BF3·OEt2, ring cleavage with dibromantin in aqueous THF containing KOAc, ozonolysis (O3/O2) in CH2Cl2/O2(CHMe2)2 with Me2S quenching in CHCl3 and oxidation in CHCl3 with H2O2 in H2O containing KHC03.

ST eplerenone steroid prep; hexahydroronaphthalene ketal enol ether prepn

IT Isomerization
(cis-trans, of pregnenone maleates to fumarates; preparation of eplerenone and its intermediates from Δ 9-canrenone and other pregnanes)

IT Addition reaction
(conjugate, of furans to pregnenones; preparation of eplerenone and its intermediates from Δ 9-canrenone and other pregnanes)

IT Ethers, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(enol, alkyl, reaction of, with a hydride abstractor; preparation of eplerenone and its intermediates from Δ 9-canrenone and other pregnanes)

IT Oxidation, electrochemical
(from alkyl enol ethers; preparation of eplerenone and its intermediates from Δ 9-canrenone and other pregnanes)

IT Abstraction reaction
(hydrogen, from alkyl enol ethers; preparation of eplerenone and its intermediates from Δ 9-canrenone and other pregnanes)

IT Alcohols, reactions
Glycols, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(ketalization by, of Δ 3,5-dienol ether; preparation of eplerenone and its intermediates from Δ 9-canrenone and other pregnanes)

IT Ozonization
(of pregnenone maleates and fumarates; preparation of eplerenone and its intermediates from Δ 9-canrenone and other pregnanes)

IT Steroids, preparation
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(pregnanes; preparation of eplerenone and its intermediates from Δ 9-canrenone and other pregnanes)

IT Ketals
RL: SPN (Synthetic preparation); PREP (Preparation)
(Δ 4,6-; preparation of eplerenone and its intermediates from Δ 9-canrenone and other pregnanes)

IT 534-22-5, 2-Methylfuran 930-27-8, 3-Methylfuran 7040-43-9, 2-(tert-Butyl)furan
RL: RCT (Reactant); RACT (Reactant or reagent)
(conjugate addition of, to pregnadienone derivs.; preparation of eplerenone and its intermediates from Δ 9-canrenone and other pregnanes)

IT 22037-28-1P, 3-Bromofuran

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (conjugate addition of, to pregnadienone derivs.; preparation of eplerenone
 and its intermediates from Δ 9-canrenone and other pregnanes)

IT 95716-71-5, Δ 9-Canrenone 192569-17-8, 11 α -Hydroxycanrenone
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (conjugate addition to, by methylfurans; preparation of eplerenone and its
 intermediates from Δ 9-canrenone and other pregnanes)

IT 192704-56-6, 11 α ,17 β -Dihydroxypregn-4-en-3-one
 7 α ,21-dicarboxylic acid γ -lactone methyl ester
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (dehydration of; preparation of eplerenone and its intermediates from
 Δ 9-canrenone and other pregnanes)

IT 67-68-5D, DMSO, o-iodoxybenzoic acid complex 75-91-2D, ruthenium
 trichloride complex 84-58-2, DDQ 118-75-2, p-Chloranil, reactions
 341-02-6, Trityl fluoroborate 536-80-1, Iodosobenzene 546-67-8, Lead
 tetraacetate 993-02-2, Manganic acetate 1122-96-9D, 4-Methoxypyridine
 N-oxide, o-iodoxybenzoic acid complex 1184-78-7D, Trimethylamine
 N-oxide, o-iodoxybenzoic acid complex 1313-13-9, Manganese dioxide,
 reactions 1333-82-0D, Chromium trioxide, 2,5-dimethylpyrazole complex
 2435-53-2, o-Chloranil 2712-78-9, Iodobenzene bistrifluoroacetate
 3240-34-4, Iodobenzene diacetate 3375-31-3 7529-22-8D,
 N-Methylmorpholine N-oxide, o-iodoxybenzoic acid complex 7782-68-5,
 Iodic acid (HIO₃) 10049-08-8D, Ruthenium trichloride, tert-Bu
 hydroperoxide complex 10139-51-2, Ceric ammonium nitrate 12029-98-0,
 Iodine pentoxyde 14546-48-6, Manganese(III), reactions 15158-12-0,
 Lead⁺⁴, reactions 16065-88-6, reactions 18540-29-9, reactions
 20492-50-6 22537-44-6, Ruthenium⁺⁸, reactions 23317-90-0, Manganese⁺⁷,
 reactions 64297-64-9, o-Iodoxybenzoic acid
 RL: RGT (Reagent); RACT (Reactant or reagent)
 (hydrogen abstraction by, in δ 4,6-steroid ketals; preparation of
 eplerenone and its intermediates from Δ 9-canrenone and other
 pregnanes)

IT 107-21-1, Ethylene glycol, reactions 126-30-7, Neopentyl glycol
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (ketalization by, of Δ 3,5-dienol ether; preparation of eplerenone and
 its intermediates from Δ 9-canrenone and other pregnanes)

IT 192704-66-8
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (ketalization of; preparation of eplerenone and its intermediates from
 Δ 9-canrenone and other pregnanes)

IT 610785-46-1P
 RL: RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use);
 BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent);
 USES (Uses)
 (preparation and Baeyer-Villiger oxidation of, with peracetic acid;
 preparation of
 eplerenone and its intermediates from Δ 9-canrenone and other
 pregnanes)

IT 610785-42-7P
 RL: RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use);
 BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent);
 USES (Uses)
 (preparation and cis-trans isomerization of; preparation of eplerenone and
 its
 intermediates from Δ 9-canrenone and other pregnanes)

IT 610785-55-2P
 RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological
 study); PREP (Preparation); USES (Uses)
 (preparation and crystal structure of; preparation of eplerenone and its
 intermediates from Δ 9-canrenone and other pregnanes)

IT 610785-47-2P

RL: RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use);
 BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent);
 USES (Uses)

(preparation and dehydration of; preparation of eplerenone and its
 intermediates
 from Δ9-canrenone and other pregnanes)

IT 95716-74-8P
 RL: RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use);
 BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent);
 USES (Uses)

(preparation and esterification or lactone hydrolysis of; preparation of
 eplerenone and its intermediates from Δ9-canrenone and other
 pregnanes)

IT 610785-44-9P
 RL: RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use);
 BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent);
 USES (Uses)

(preparation and intramol. conjugate addition of; preparation of eplerenone
 and its
 intermediates from Δ9-canrenone and other pregnanes)

IT 610785-45-0P
 RL: RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use);
 BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent);
 USES (Uses)

(preparation and ketalization of; preparation of eplerenone and its
 intermediates
 from Δ9-canrenone and other pregnanes)

IT 610785-57-4P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)

(preparation and ozonolysis of; preparation of eplerenone and its
 intermediates
 from Δ9-canrenone and other pregnanes)

IT 610785-41-6P 610785-43-8P
 RL: RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use);
 BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent);
 USES (Uses)

(preparation and ozonolysis of; preparation of eplerenone and its
 intermediates
 from Δ9-canrenone and other pregnanes)

IT 610785-50-7P
 RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological
 study); PREP (Preparation); USES (Uses)

(preparation and ozonolysis of; preparation of eplerenone and its
 intermediates
 from Δ9-canrenone and other pregnanes)

IT 610785-56-3P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)

(preparation and ozonolysis or reaction of, with hydrogen peroxide;
 preparation
 of eplerenone and its intermediates from Δ9-canrenone and other
 pregnanes)

IT 610785-40-5P
 RL: RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use);
 BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent);
 USES (Uses)

(preparation and ring cleavage of, with dibromantin; preparation of
 eplerenone
 and its intermediates from Δ9-canrenone and other pregnanes)

IT 107724-20-9P, Eplerenone
 RL: PNU (Preparation, unclassified); PREP (Preparation)

(preparation of eplerenone and its intermediates from Δ9-canrenone and

other pregnanes)

IT 95717-00-3, 9 α ,11 α -Epoxycanrenone
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of eplerenone and its intermediates from Δ 9-canrenone and other pregnanes)

IT 611199-42-9, N-(1,1,2,2,3,3,3-Hexafluoropropyl)diethylamine
RL: RGT (Reagent); RACT (Reactant or reagent)
(preparation of eplerenone and its intermediates from Δ 9-canrenone and other pregnanes)

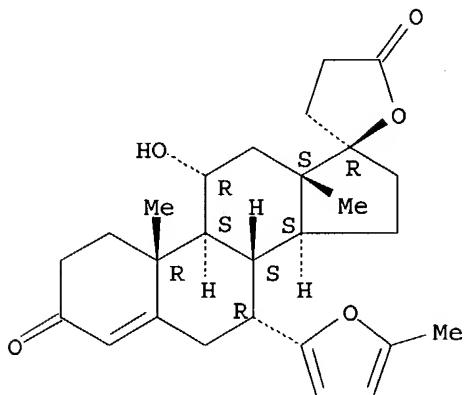
IT 95716-70-4P 209253-82-7P 610785-38-1P 610785-39-2P
610785-48-3P 610785-49-4P 610785-51-8P
610785-52-9P 610785-53-0P 610785-54-1P
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of eplerenone and its intermediates from Δ 9-canrenone and other pregnanes)

IT 610785-47-2P
RL: RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(preparation and dehydration of; preparation of eplerenone and its intermediates
from Δ 9-canrenone and other pregnanes)

RN 610785-47-2 HCPLUS

CN Pregn-4-ene-21-carboxylic acid, 11,17-dihydroxy-7-(5-methyl-2-furanyl)-3-oxo-, γ -lactone, (7 α ,11 α ,17 α)- (9CI) (CA INDEX
NAME)

Absolute stereochemistry.

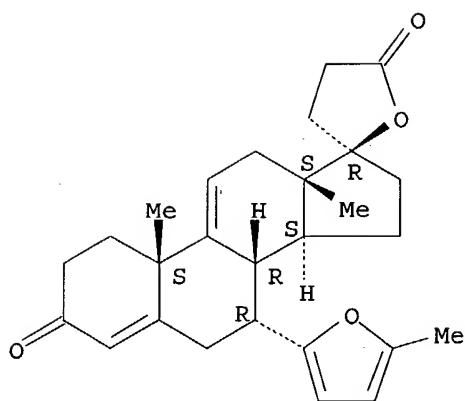


IT 610785-40-5P

RL: RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use);
BIOL (Biological study); PREP (Preparation); RACT (Reactant or reagent);
USES (Uses)
(preparation and ring cleavage of, with dibromantin; preparation of
eplerenone
and its intermediates from 4C-norbornane and other precursors)

RN 610785-40-5 HCPLUS
CN Pregna-4,9(11)-diene-21-carboxylic acid, 17-hydroxy-7-(5-methyl-2-furanyl)-3-oxo-, γ -lactone, (7 α ,17 α)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



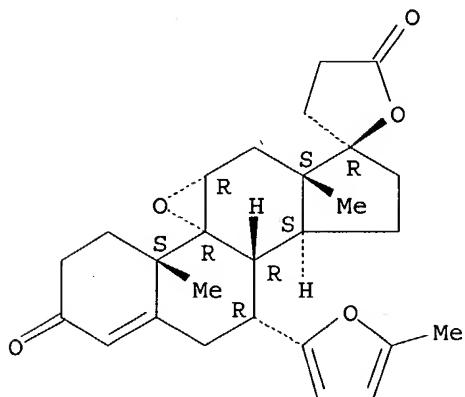
IT 610785-48-3P 610785-51-8P 610785-52-9P
 610785-53-0P 610785-54-1P

RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
 (preparation of eplerenone and its intermediates from Δ^9 -canrenone and other pregnanes)

RN 610785-48-3 HCPLUS

CN Pregna-4,9(11)-diene-21-carboxylic acid, 9,11-epoxy-17-hydroxy-7-(5-methyl-2-furanyl)-3-oxo-, γ -lactone, (7 α ,11 α ,17 α)- (9CI)
 (CA INDEX NAME)

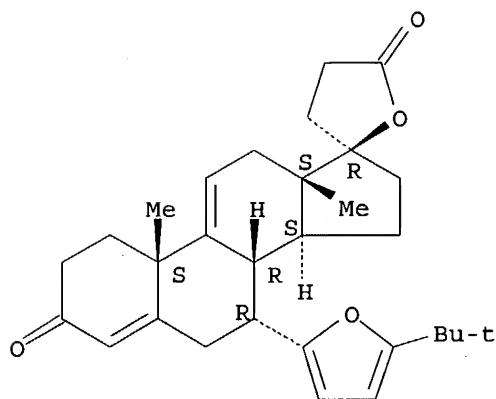
Absolute stereochemistry.



RN 610785-51-8 HCPLUS

CN Pregna-4,9(11)-diene-21-carboxylic acid, 7-[5-(1,1-dimethylethyl)-2-furanyl]-17-hydroxy-3-oxo-, γ -lactone, (7 α ,17 α)- (9CI)
 (CA INDEX NAME)

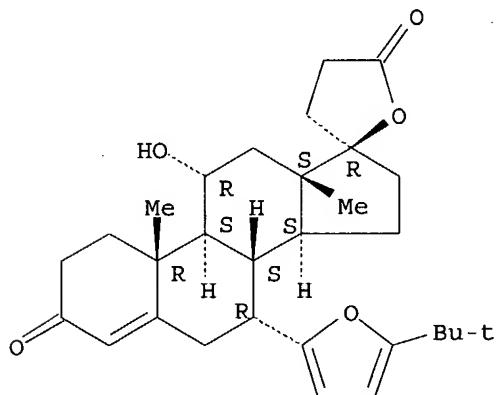
Absolute stereochemistry.



RN 610785-52-9 HCAPLUS

CN Pregn-4-ene-21-carboxylic acid, 7-[5-(1,1-dimethylethyl)-2-furanyl]-11,17-dihydroxy-3-oxo-, γ -lactone, (7 α ,11 α ,17 α)- (9CI)
(CA INDEX NAME)

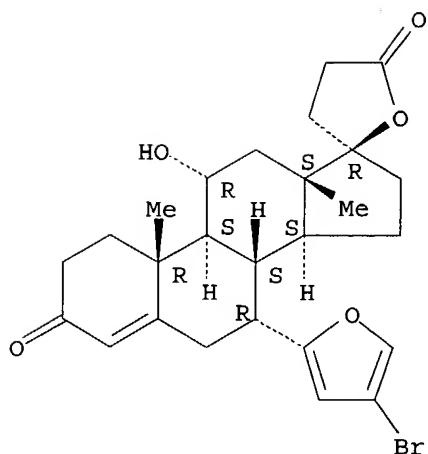
Absolute stereochemistry.



RN 610785-53-0 HCAPLUS

CN Pregn-4-ene-21-carboxylic acid, 7-(4-bromo-2-furanyl)-11,17-dihydroxy-3-oxo-, γ -lactone, (7 α ,11 α ,17 α)- (9CI) (CA INDEX NAME)

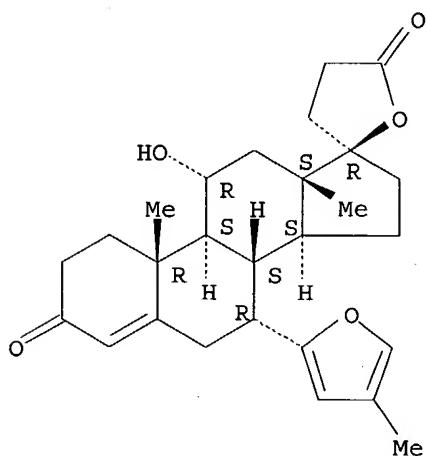
Absolute stereochemistry.



RN 610785-54-1 HCPLUS

CN Pregn-4-ene-21-carboxylic acid, 11,17-dihydroxy-7-(4-methyl-2-furanyl)-3-oxo-, γ -lactone, (7 α ,11 α ,17 α)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



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FILE 'USPATFULL' ENTERED AT 06:42:07 ON 28 OCT 2004
CA INDEXING COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'USPAT2' ENTERED AT 06:42:07 ON 28 OCT 2004
CA INDEXING COPYRIGHT (C) 2004 AMERICAN CHEMICAL SOCIETY (ACS)

=> => d 134 bib abs hitstr

L34 ANSWER 1 OF 1 USPATFULL on STN
AN 2004:127491 USPATFULL
TI Processes for preparing C-7 substituted steroids
IN Wuts, Peter Guillaume Marie, Mattawan, MI, UNITED STATES
PI US 2004097475 A1 20040520
AI US 2003-392945 A1 20030321 (10)
PRAI US 2002-424488P 20021107 (60)
DT Utility

FS APPLICATION

LREP PHARMACIA & UPJOHN, 301 HENRIETTA ST, 0228-32-LAW, KALAMAZOO, MI, 49007

CLMN Number of Claims: 8

ECL Exemplary Claim: 1

DRWN No Drawings

LN.CNT 975

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB This invention relates to processes for the preparation of novel 7-carboxy substituted steroid compounds of Formula I, ##STR1##

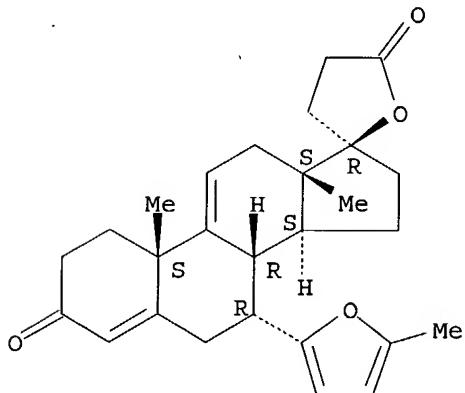
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

IT 610785-40-5P 610785-47-2P 690958-45-3P
690958-80-6P 690958-83-9P 690958-89-5P
690958-98-6P(preparation of C-7 substituted steroids from 5-androsten-3 β -ol-17-one)

RN 610785-40-5 USPATFULL

CN Pregna-4,9(11)-diene-21-carboxylic acid, 17-hydroxy-7-(5-methyl-2-furanyl)-3-oxo-, γ -lactone, (7 α ,17 α)- (9CI) (CA INDEX NAME)

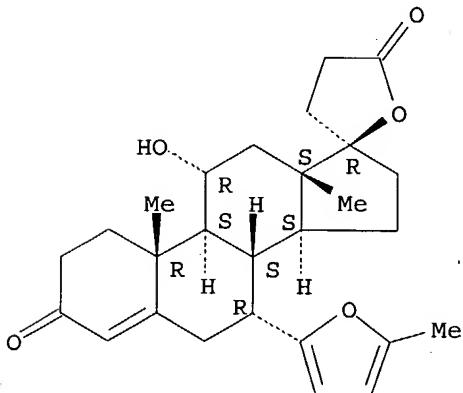
Absolute stereochemistry.



RN 610785-47-2 USPATFULL

CN Pregna-4-ene-21-carboxylic acid, 11,17-dihydroxy-7-(5-methyl-2-furanyl)-3-oxo-, γ -lactone, (7 α ,11 α ,17 α)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

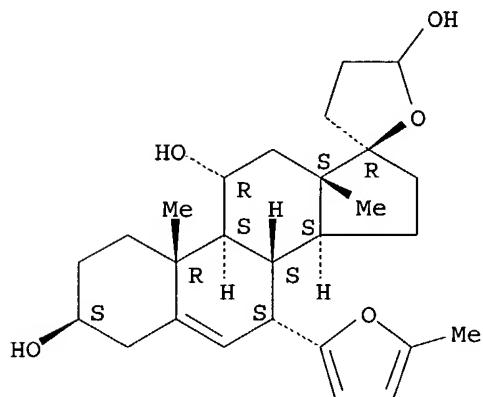


RN 690958-45-3 USPATFULL

CN Spiro[androst-5-ene-17,2'(3'H)-furan]-3,5',11-triol, 4',5'-dihydro-7-(5-methyl-2-furanyl)-, (3 β ,7 α ,11 α ,17 β)- (9CI) (CA INDEX NAME)

(INDEX NAME)

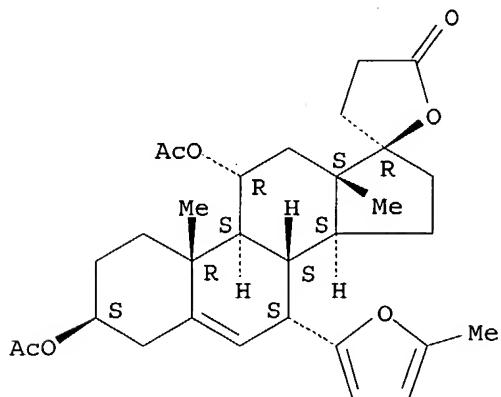
Absolute stereochemistry.



RN 690958-80-6 USPATFULL

CN Spiro[androst-5-ene-17,2'-(5'H)-furan]-5'-one, 3,11-bis(acetyloxy)-3',4'-dihydro-7-(5-methyl-2-furanyl)-, (3β,7α,11α,17β)-(9CI) (CA INDEX NAME)

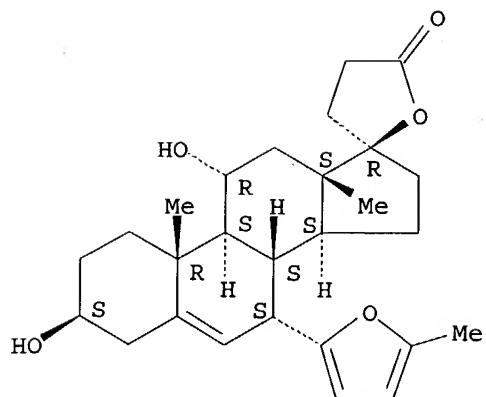
Absolute stereochemistry.



RN 690958-83-9 USPATFULL

CN Pregn-5-ene-21-carboxylic acid, 3,11,17-trihydroxy-7-(5-methyl-2-furanyl)-, γ-lactone, (3β,7α,11α,17α)-(9CI) (CA INDEX NAME)

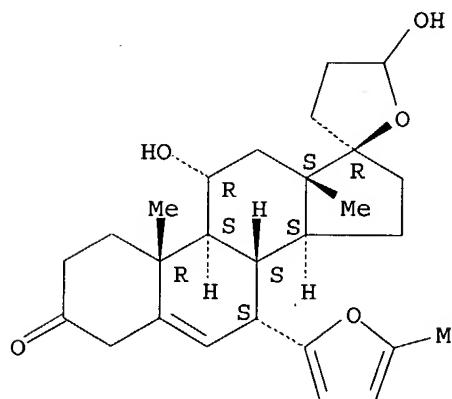
Absolute stereochemistry.



RN 690958-89-5 USPATFULL

CN Spiro[androst-5-ene-17,2'-(3'H)-furan]-3-one, 4',5'-dihydro-5',11-dihydroxy-7-(5-methyl-2-furanyl)-, (7 α ,11 α ,17 β)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 690958-98-6 USPATFULL

CN Pregn-5-ene-21-carboxylic acid, 11,17-dihydroxy-7-(5-methyl-2-furanyl)-3-oxo-, γ -lactone, (7 α ,11 α ,17 α)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

